

In the Claims

This listing of claims will replace all prior versions and listings of claims in the application:

- 1 1. (Currently Amended) A method for distributed device identifier
- 2 number assignment and device counting in a serially connected chain
- 3 of devices, comprising:
 - 4 initializing a first and a second memory locations both to a
 - 5 value that is equal to a maximum allowed number of devices in the
 - 6 serially connected chain;
 - 7 receiving a first sequence of received pulses;
 - 8 determining a unique device identifier based upon the first
 - 9 sequence received of pulses;
 - 10 transmitting a first sequence of transmitted pulses;
 - 11 receiving a second sequence of received pulses;
 - 12 transmitting a second sequence of transmitted pulses; and
 - 13 determining a total device count based upon the first and
 - 14 second sequences of received pulses.

2 and 3. (Canceled)

- 1 4. (Currently Amended) The method of claim 3 1, wherein the
- 2 determining a unique device identifier step comprises:
 - 3 counting a number of pulses in the first sequence of received
 - 4 pulses; and
 - 5 subtracting the number of pulses from the value stored in the
 - 6 first memory location.
- 1 5. (Original) The method of claim 4, wherein the unique device
- 2 identifier is stored back to the first memory location.

1 6. (Currently Amended) The method of claim 3 1, wherein the
2 determining a total device count comprises:

3 counting the number of pulses in the second sequence of
4 received pulses;

5 subtracting the number of pulses from the value stored in the
6 second memory location to obtain a difference; and

7 adding the value stored in the first memory location and the
8 difference.

1 7. (Original) The method of claim 6, further comprising
2 incrementing the result of adding the value stored in the first
3 memory location and the difference by one (1.0).

1 8. (Currently Amended) ~~The A method of claim 1, wherein for~~
2 distributed device identifier number assignment and device counting
3 in a serially connected chain of devices, comprising:

4 receiving a first sequence of received pulses;

5 determining a unique device identifier based upon the first
6 sequence received of pulses;

7 transmitting a first sequence of transmitted pulses, the first
8 sequence of transmitted pulses ~~is~~ being a sequence of pulses with
9 one pulse less than the number of pulses in the first sequence of
10 received pulses;

11 receiving a second sequence of received pulses;

12 transmitting a second sequence of transmitted pulses; and

13 determining a total device count based upon the first and
14 second sequences of received pulses.

1 9. (Currently Amended) ~~The A method of claim 1, wherein for~~
2 distributed device identifier number assignment and device counting
3 in a serially connected chain of devices, comprising:

4 receiving a first sequence of received pulses;

5 determining a unique device identifier based upon the first
6 sequence received of pulses;
7 transmitting a first sequence of transmitted pulses;
8 receiving a second sequence of received pulses;
9 transmitting a second sequence of transmitted pulses, the
10 second sequence of transmitted pulses is being a sequence of pulses
11 with one pulse less than the number of pulses in the second
12 sequence of received pulses; and
13 determining a total device count based upon the first and
14 second sequences of received pulses.

1 10. (Original) The method of claim 1, wherein the receiving first
2 received sequence and the transmitting first transmitted sequence
3 are received and transmitted over different input/output
4 connections.

1 11. (Original) The method of claim 1, wherein the receiving second
2 received sequence and the transmitting second transmitted sequence
3 are received and transmitted over different input/output
4 connections.

1 12. (Currently Amended) ~~The A method of claim 1, wherein for~~
2 distributed device identifier number assignment and device counting
3 in a serially connected chain of devices, comprising:
4 receiving a first sequence of received pulses;
5 determining a unique device identifier based upon the first
6 sequence received of pulses;
7 transmitting a first sequence of transmitted pulses;
8 receiving a second sequence of received pulses;
9 transmitting a second sequence of transmitted pulses;
10 determining a total device count based upon the first and
11 second sequences of received pulses; and

12 the steps of receiving first received sequence and
13 transmitting second transmitted sequence are received and
14 transmitted over the same input/output connection.

1 13. (Currently Amended) The A method of claim 1, wherein for
2 distributed device identifier number assignment and device counting
3 in a serially connected chain of devices, comprising:
4 receiving a first sequence of received pulses;
5 determining a unique device identifier based upon the first
6 sequence received of pulses;
7 transmitting a first sequence of transmitted pulses;
8 receiving a second sequence of received pulses;
9 transmitting a second sequence of transmitted pulses;
10 determining a total device count based upon the first and
11 second sequences of received pulses; and
12 the steps of transmitting first transmitted sequence and
13 receiving second received sequence are received and transmitted
14 over the same input/output connection.

1 14. (Currently Amended) A semiconductor device comprising:
2 a counter, coupled to an input/output node, the counter for
3 counting a number of pulses in a sequence of pulses received at the
4 input/output node;
5 a first storage location to store a first count result; and
6 a pulse generator, for generating a specified length sequence
7 of pulses, the specified length being one less than the number of
8 pulses in the sequence of pulses received at the input/output node;
9 and
10 wherein the semiconductor device uses the first count result
11 as a device identifier.

15. (Canceled)

1 16. (Original) The semiconductor device of claim 14, wherein a
2 second sequence of pulses is received at a second input/output
3 node.

1 17. (Original) The semiconductor device of claim 16, further
2 comprising a second storage location to store a second count
3 result.

1 18. (Original) The semiconductor device of claim 17, wherein the
2 first and second count results are combined to provide information
3 on a total number of devices in a system that includes the
4 semiconductor device.

1 19. (Original) The semiconductor device of claim 14, further
2 comprising a controller, coupled to the first storage location, the
3 counter and the pulse generator, the controller controlling the
4 operation of the counter and the pulse generator.

1 20. (Original) The semiconductor device of claim 19, wherein the
2 controller is a microcontroller.

1 21. (Original) The semiconductor device of claim 19, wherein the
2 controller is a microprocessor.

1 22. (Original) The semiconductor device of claim 19, wherein the
2 controller is a finite state machine.

1 23. (Currently Amended) A system comprising:
2 a processor, coupled to a sequence of least one codec, adapted
3 to processing digital data;

4 a controller, coupled to the sequence of at least one codec,
5 adapted to controlling communications between the processor and the
6 sequence of at least one codec;

7 the sequence of at least one codec, each codec comprising:
8 a port coupled to the processor and the controller; and
9 a semiconductor device for distributed device identifier
10 number assignment and device counting coupled to the port, the
11 semiconductor device comprising:

12 a counter, coupled to an input/output node, the
13 counter for counting a number of pulses in a sequence of pulses
14 received at the input/output node;

15 a first storage location to store a first count
16 result; and

17 a pulse generator, for generating a specified length
18 sequence of pulses, the specified length being one less than the
19 number of pulses in the sequence of pulses received at the
20 input/output node.

24. (Canceled)

21 25. (Currently Amended) The A system of claim 23, comprising:
22 a processor, coupled to a sequence of least one codec, adapted
23 to processing digital data;
24 a controller, coupled to the sequence of at least one codec,
25 adapted to controlling communications between the processor and the
26 sequence of at least one codec;
27 the sequence of at least one codec, each codec comprising:
28 a port coupled to the processor and the controller; and
29 a semiconductor device for distributed device identifier
30 number assignment and device counting coupled to the port; and
31 wherein a FSD signal line of a final codec in the sequence of
32 at least one codec is connected to an external pulse generator.

1 26. (Original) The system of claim 23, wherein the semiconductor
2 device operates each time the system is reset.

1 27. (Original) The system of claim 23, wherein the semiconductor
2 device operates each time the system is powered-up.

28 to 47. (Canceled)

1 48. (New) The system of claim 25, wherein the semiconductor device
2 operates each time the system is reset.

1 49. (New) The system of claim 25, wherein the semiconductor device
2 operates each time the system is powered-up.